

Brief Bio-data

1. Name : **DR. C. SAWMLIANA**

2. Date of Birth : 25.02.1971

3. Current Position and Address (Include Email ID and Contact Number) :

Sr. Principal Scientist
Rock Excavation Engineering Division
CSIR-Central Institute of Mining and Fuel Research (CSIR-CIMFR)
Barwa Road, Dhanbad-826015, Jharkhand (India)
EPABX Lines 0326-2296027 Ext. 4449
Mobile Phone: 9471191134
Emails: csawmliana@cimfr.nic.in & csla_cimfr@yahoo.com

4. Educational qualifications: (Graduation and above)

Sl. No.	Degree	Year of Passing	University/Institute	Subject
1	Doctor of Philosophy	2007	IIT-Indian School of Mines (IIT-ISM), Dhanbad	Mining Engineering
2	Master of Technology	1997	IIT-Banaras Hindu University (IIT-BHU), Varanasi	Mining Engineering
3	Bachelor of Engineering (BE)	1995	Bengal Engineering College (Calcutta Univ.)	Mining Engineering
4	Master of Science (Disaster Mitigation)	2011	Sikkim Manipal University, Gangtok, Sikkim	Disaster Mitigation

5. Work experience:

Designation	Institute/company	From	To	Nature of Work
Project Fellow	CSIR-CIMFR	Sep., 1998	June, 1999	Field works, data collection and data analysis
Scientist-'B'	CSIR-CIMFR	July, 1999	June, 2002	R&D in the field of rock excavations using drilling and blasting in mining and civil engineering construction projects
Scientist-'C'	CSIR-CIMFR	July, 2002	June, 2006	
Senior Scientist	CSIR-CIMFR	July, 2006	June, 2009	
Principal Scientist	CSIR-CIMFR	July, 2009	June, 2014	
Sr. Principal Scientist	CSIR-CIMFR	July, 2014	Till date	

6. Work Area(s)/ Specialization:

Controlled blasting in mines & quarries, design of rock excavation in civil engineering construction projects, contour blasting for wall damage control, induced blasting in underground coal mines, tunnel and underground mine development blasts, demolition blasting, explosives testing etc.

7. Major contributions: (Max. 100 words):

Developed controlled blast design patterns for conducting safe blasting operations within 'Danger Zone' for more than 75 opencast mines and quarries. Also developed induced blasting patterns for hard roof management in bord & pillar, longwall, continuous miner faces and blasting gallery methods of underground coal mines. Designed, developed and carried out safe excavation of hard rock using controlled blasting in various civil infrastructures and strategic sectors viz. construction of Navi Mumbai International Airport, Konkan Railways, road construction along the Indo-China border of Border Road Organisation (BRO) Projects etc. Also worked in many hydroelectric projects for design of tunnel blasting, open excavation of rocks and demolition of coffer walls in India and Bhutan. Successfully demolished seven numbers of old Railway Over Bridges (ROBs) using controlled blasting located between Pirpainti and Bhagalpur Sections of Eastern Railways.

8. No. of Research Publications:

- Papers in Journals: 45
- In conference proceedings: 47
- Invited lectures delivered: 10
- Books/Chapters authored/edited: 01

Book Published: 'Ringhole and Induced Blasting in Blasting Gallery Method' jointly co-authored by Dr. C. Sawmliana, Dr. VMSR Murthy & Dr. P. Pal Roy. Published by V. D. M. Verlag, German. Cost: Euro \$. 79/-

• List of best 05 publications:

- (1) C. Sawmliana, P. Pal Roy, R. K. Singh and T. N. Singh. Blast induced air overpressure and its prediction using artificial neural network. TIMM (Mining Technology), 2007, Vol. 113, No. 2, pp. 41-48.
- (2) C. Sawmliana and P. Pal Roy (2003): Improving fragmentation of coal during ring-hole blasting in Blasting Gallery Panels. The 29th annual Conference on Explosives and Blasting Technique, Nashville, Tennessee, U.S.A., February 2-5, 2003.
- (3) C. Sawmliana, Rakesh Kr. Singh and Pijush Pal Roy, Sanghrima Chawngthu and Ramhluna Khiangte (2008): Controlled blasting at Durtlang-Leitan: a successful blasting operation in sensitive and hilly area. The 42nd U.S. Rock Mechanics Symposium, June 29 – July 2, 2008, San Francisco, USA, ARMA 08-119.

- (4) Sawmliana C., Singh R. K., Hembram P. and Dawngliana Orizen MS (2021): Ground vibration generated by hydraulic rock breakers and its impact on the safety of nearby earthfill dam in a graphite mine. Quarterly Journal of Engineering Geology and Hydrogeology, Geological Society of London, 19th March 2021, <https://doi.org/10.1144/qjegh2020-113>.
- (5) Sawmliana C., Hembram P., Singh R. K., Banerjee S., Singh P. K. and Pal Roy P. (2020): An investigation to assess the cause of accident due to flyrock in an opencast coal mine: A case study. Journal of Institution of Engineers India-Series D, Springer Publications, (January–June 2020) 101(1):15–26, <https://doi.org/10.1007/s40033-020-00215-4>.

9. List of 5 Major Contract R&D Projects:

- (1) Advice for optimisation of blast design parameters for flattening at Ulwe Hill as a part of the land development works for construction of Navi Mumbai International Airport (NMIA) [Project Cost : Rs. 5.5 Crore, Funding Agency- CIDCO]
- (2) Improvement and rectification of controlled blast design patterns for hard rock excavation at NTPC Khargone super Thermal Project site, MP (2 x 660 MW) [Project Cost: Rs. 82.21 lakh, Funding Agency: NTPC]
- (3) Advice for designing of safe and efficient blast design patterns for rock excavation works of different strategic roads of Border Roads Organisation. [Project Cost Rs. 1.05 Crores, Funding Agency-BRO]
- (4) Investigations to optimise blast design and charge loading parameters in coal for Ringhole Blasting and in stone for Induced Blasting in degree-I seams for Blasting Gallery method in underground mines of The Singareni Collieries Company Limited (SCCL). [Funded by Ministry of Coal & Mines, Government of India and M/s Singareni Collieries Company Ltd., Cost of the Project = Rs. 38.00 lakh]
- (5) Advice for controlled demolition of seven arch-bridges (ROB) at different locations between Pirpainti and Bhagalpur section of Eastern Railways [Project Cost: Rs. 20 lakhs, Funding Agency- M/s Hardev Construction]

10. (a) Name of Patents/Copyrights applied /granted/commercialized:

Method for excavation of slot raise and rings simultaneously in underground stope using drilling and blasting; Patent Application No. 0033NF2021; Murari Prasad Roy, Vivek Kumar Himanshu, Ranjit Kumar Paswan, Suraj Kumar, Chhange Sawmliana, Pradeep Kumar Singh.

(b) Technologies/Products /knowhow/Services developed : N/A

11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships received:

- (1) CSIR Technology Award-2018 for business development & technology marketing.
- (2) CSIR Technology Award - 2019 in 'Physical Sciences and Engineering' for Controlled Blasting Techniques developed for safe extraction of minerals from mines and construction of various civil infrastructure projects.
- (3) Banaras Hindu University (BHU) Gold Medal for standing First in the M. Tech (Mining) Examination in the year 1997.
- (4) ZONET Award, 2007: Received for “Exemplary Citizen for the Mizo Youth” given by the Zonet Cable Network of Mizoram.
- (5) STAM Award 2012: Received for “Contributions in Applied Science for the state of Mizoram” given by the Science Teachers Association of Mizoram.

12. Societal Contributions:

The controlled blasting works carried out in various civil infrastructure projects are indirectly linked to the societal benefits and safety viz. road constructions in Indo-China border of BRO Project, safe demolition of Railway Over Bridges (ROBs) for doubling of railway lines, construction of Navi Mumbai International Airport, safe dismantling of unstable boulder in Brahmayoni hill, Gaya town, stabilization of unstable rock cuttings in Konkan Railway etc.